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Becoming Famous and Then Richer: How Status Can Bias Perfect Competition

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Abstract

We test the effect of status in a laboratory experimental market using the standard Double Oral Auction. We consider a box design with a unique Walrasian outcome. In half of the experiments status is awarded to a group of people according to the scores of a trivia quiz. The status group is in the long side of the market, hence they do not have any market power. In the other half of the experiments status is not awarded. We find that prices never reach the Walrasian price in the status sessions while it is attained in non status experiments. Therefore status bias the theoretical perfect competition outcome.

1. Introduction

When we are children we learn most things that are important in life. Being sleepy, hungry or ill is definitely bad. For some time our parents care about us but soon we understand that a thing called money is needed to satisfy some of our necessities. To earn money, in most cases, we have to work. That is, do useful things for other people using an amount of time we prefer to spend having fun. Other people do useful things for us in exchange for money. We also learn how to be rational. That is, how to use all

our information and knowledge to find the best way to do a task. These are basically the obvious or realistic foundations of the science called microeconomics.

However at the same time we learn some other interesting stuff, for instance about how important it is to be appreciated or recognized by other people. Moreover people are not always rational. They even have feelings and emotions. Sometimes they cannot control them. Although these and other issues are not usually taken into account as determinants of economic behavior they may have some importance. Behavioral economics tries to define which of these psychological or sociological issues matter and in which way. Experimental economics tries to prove using controlled experiments how important these effects are if they exist.

In our case we try to see how status matters for the outcome of a competitive market. We find that a random allocation of status to one of the sides of the market critically changes the result of a competitive market. We allocate status in the sense that it does not depend on any characteristic of the subject. The usual (non-status) experiment gives the Walrasian competitive outcome. This is a well known experimental result, it never changed through sex, age or country differences (see Davis and Holt, 1992).We just assign status to the weak side of the market. In the status experiment the resultant outcome changes in favour of the status side of the market. We use a very simple model originally proposed by Ball et alter (2001) that can explain the results. Finally we compute the status effect as a random variable that is added to the monetary payoff.

In Section 2 we explain what is status and how it can matter in economics. Section 3 is a brief explanation of the experimental procedure used, Vernon Smith's Double Auction (DA). Then in Section 4 we discuss the results and findings of a previous DA status experiment. Section 5 discusses Ball's status model for our experimental design then presents and explains our experiment, comment their results and calibrates the «status surplus». Section 6 includes a proposal for future research and Section 7 concludes. There is also an Appendix including the experimental instructions, the trivia quiz and specific data obtained presented in both numerical and graphical ways.

2. How Status Matters

We can define status according to Ball et alter (2001) as «a ranking in a hierarchy that is socially recognized and typically carries with it the expectation of entitlement to certain resources». Moreover a person's status entitles them to certain privileges and affects the way they interact with others.

The sociologist Max Weber (see Fershtman and Weiss, 1998) was the first to introduce status as an important source of power. He considered both «status situation» and «market situation» as two connected ways to obtain rewards. One can obtain a monetary reward in the market. In the status situation the reward can be understood as «honor». However sometimes the most honoured people can have some privileges including advantages to obtain money more easily. One person can be awarded with status by some different ways:

— inheriting it, as in the case of aristocrats
— education, for example through an Ivy League degree
— social success, for instance becoming an important entrepreneur
— marriage, we can think of many other examples...
— life style, a subway beggar can earn more money than a Ph.D. student but their status is lower (in most cases)
— occupational prestige, lawyers and medicine doctors are the best examples in Spain.

There are different channels through which status works. First of all one can think that status is worthy itself. Being a more appreciated person is always good so people care about having or not status. Hence they can make efforts or invest money to obtain it.

Many economic papers focus on the issue of obtaining status as obtaining another market good (see Fershtman and Weiss, 1998). One extreme example can be the sale of the baronet title in Middle Age England when people can join the aristocracy just paying by an amount of money. Sometimes buying status is modelled as buying status goods as a fancy car or a loft in New York's Upper East Side. In other cases status is gained joining a status group, for example the Rotary Club, a sports club or a college brotherhood. In these cases there is a sort of externality problem (see Hoff and Sen, 2000), the new member gets the status of the group being essentially the same person. Membership fees, access trials or some kind of expected behavior (noblesse oblige) can solve the externality problem. On the other hand externalities can go in the opposite direction: if many lower status people join the club the status of every old member can be decreased.

One can think that status is worthy because it comes with some economic advantage (see Becker et alter, 2000, there is an interesting relationship with the willingness to accept unfair lotteries). Sometimes this economic advantage can be legally formalized like, for instance, in the Middle Age when the nobility was favored with

privileges codified in specific laws. Otherwise sometimes people with economic advantages eventually increase their status situation. Think in the XIX century New York high society with all these Vanderbilts, Rockefellers and Carnegies. They started as railroad or steel moguls and became the most sophisticated people at that side of the Atlantic. If status can change the result of a competitive market is just the point we try to prove and explain here. In our experiment status is awarded in a random way but the experimental subjects think that people in the prestige group is actually more clever or better in some way.

Not only people can have status. As every marketing executive knows trademarks have status. One can remember these late seventies Pepsi Cola TV ads where subjects were asked to test two cola drinks and say which is the best, of course most people preferred Pepsi over Coca Cola in this ad. This is an example of anti-status advertising. Prestigious products are usually more expensive and they are also less exposed to competition. There is a scoop for either IO status experiments and theoretical developments.

We can think of our experiment as a stylised example of a market where high status overproducing suppliers deal with low demand and low status final producers. Think of overproducing suppliers as Swedish steel pipe producers. Think of low demand buyers as Spanish public work companies. We use the experimental procedure to know if being Swedish (having reputation or high status) and Spanish (and having the opposite reputation) has any influence in the economical relation. Many other things can count, for instance the structure of the market, but the point of the experimental approach is that we have a high control of the environment and then we can see if a single variable matters[1].

3. The Double Auction Experimental Procedure

The double auction (DA) is perhaps the most used mechanism to simulate experimentally a competitive market. Basically in a double auction people call out bids and offers, when somebody agree to buy or sell at the current priced a contract is signed. In fact this is the mechanism that is used in some Stock Exchange markets. It is actually a very strong procedure; in hundreds of DAs reported in literature competitive price levels are eventually reached with no significant evidence against, even in the presence of severe earning inequities. Stock Exchange markets have the best reputation as perfectly competitive markets.

[1] Our experimental market is perfectly competitive in the absence of status.

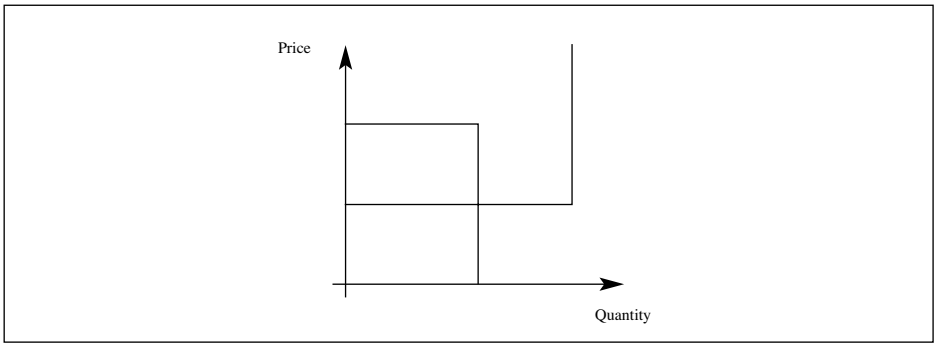
Double auction markets are divided into a sequence of trading periods. A trading period may last from three to five minutes to sell ten units. At the beginning of the experiment buyers are endowed with unit valuations and sellers with unit costs. This is private information for each subject and cannot be shared between individuals. Units can have different values or costs in order to build supply and demand functions. Buyers' profits are calculated as the difference between the unit value and the purchase price. Sellers' profits are the price minus the unit cost. Units are traded one by one. Buyers purchase higher value units first. Sellers start selling their lower cost units.

In a double auction market buyers call out bids as they compete to make the highest bid, sellers call out offers as they compete to make the lowest offer. At any time any seller may accept a standing bid and any buyer may accept a standing offer. Then both parts involved in a contract record their profits. Hence bids and offers start for another unit.

Usually prices do not converge to the competitive price in just one period, there is an adjusting time. In any case convergence is eventually reached after three or four periods. Then contracts stay in the competitive price. It's very interesting to change the supply-demand parameters of the market after the competitive outcome is reached. That is, give the subjects a new set of costs and valuations set up in the way that the Walrasian price changes. Then after three or four more periods the new theoretical equilibrium price is obtained.

Note that a double auction is just an experimental procedure. We can think in it as a very complex sequential game where players can take actions as bid, ask or accept in any moment of the continuous time. However it seems very difficult to find a solution for this game for example using backwards induction, for instance we do not know the length of the game.

Figure 1. A box design supply and demand structure



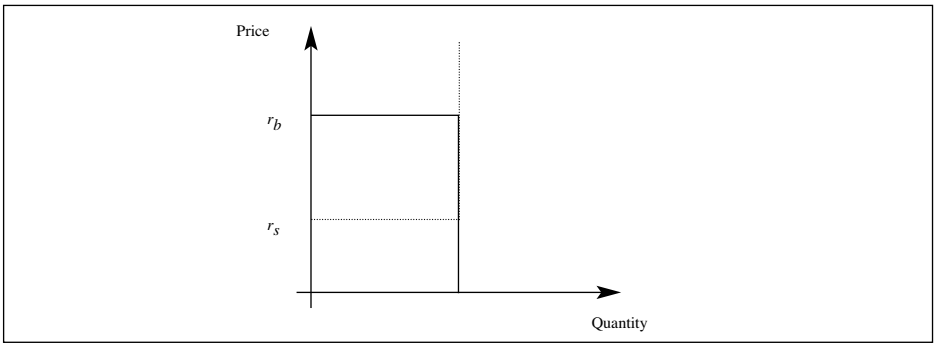
There is one special type of double auction market called the «box design». In a box design market valuations are the same for every unit purchased by any buyer and costs are the same for every unit produced by any seller. Supply and demand functions are like in Figure 1. If the number of units that can be supplied at a finite cost equal the number of units demanded with a positive valuation we will have a vertical overlapping in supply and demand functions and we will be in a multiple equilibrium case (Figure 2). In this case any price between cost and valuation is a walrasian outcome. There is no experimental evidence in favour of one or another outcome in this case.

A double auction can be oral or computerized. In our experiments we use the oral procedure because we need some personal interactuation in a status set up. Moreover we use a variant of the double oral auction where sellers and buyers are called alternatively to offer and bid, if there are more than one person who wants to perform and action a «random device» choose the one that talks is this turn. The market is less «messy» using this procedure[2].

4. Status in Markets: Ball's Experiment

Ball et alter (2001) used a experimental procedure to test the effect of status. They consider a box design market with a vertical overlapping of supply and demand functions (Figure 2). This is a case with a continuum of equilibria between cost and valuation.

Figure 2. Overlapping supply and demand functions in Ball et al. (2001)



[2] This is the explanation in Ball et alter (2001) to use this procedure. They run also some experiments with the usual procedure and no significant difference was found. Look at the following section for details.

Any experiment started with a status allocation procedure followed by a double oral auction where one side of the market has high status. Allocating status was preferred to use naturally-occurring status difference because subjects may not agree in who is ranked better. For instance some people think that football team members are the best but other can think they are usually stupid and then low status. Moreover allocating status is better in other way: this sort of «experimental status» is actually weak then if it still matters it is a very important finding. In fact it looks strange that a made up way to allocate status can work. The first «allocated status» experiment was performed by the elementary school teacher Jane Elliot. She created a hierarchy based on the children's eye color. Surprisingly children with the «correct» eye colour achieved better grades in the exams (Peters, 2000). But still, one can think that university students are far from elementary school children. They cannot be manipulated in such a way. The true thing is they can be. Moreover, many experiments indicate (Cooper et alter, forthcoming) that the behavior of undergraduate students does not differ from firm manager's one in the same conditions.

Ball et alter manipulated the status of people in two ways. In five experiments subjects answer a trivia quiz with obscure numerical questions. Experimenters actually add the results but subjects think that the test is «seriously» scored. This procedure ensures that the quiz is not selecting more skilled subjects[3]. The names of the half of the people with highest scores are announced and then they are awarded with status, i.e. the experimenters congratulate them for being the best answering the test. In the other treatment (other five experiments) the status is awarded in a random way known by the subjects.

Hence in any treatment the high status group takes one side of the market, buyers or sellers. In any treatment and in any side of the market the status group captures a greater share of the surplus earning significantly more than the non status people. Status even matters in the case of a known random assignment. Of course the effect is much more intense in the trivia quiz case.

There is evidence of sensitivity to social factors in bargaining experiments (see Ball et alter, 2001). On the other hand double auctions converge to competitive outcomes. It seems that a multiple equilibria box design introduces a scope for social factors to affect the equilibrium price which is eventually selected.

[3] Our own trivia quiz can be found in the appendix.

Ball et alter also propose a simple theoretical model for status. It is assumed that people prefer to trade with higher status partners and also they prefer not to trade with those having less status than themselves. Hence they write the utility to individual i of negotiating a trade with individual j for m units of the *numeraire* and x units of the indivisible good as:

$$u_{ij} = m + xr_i + \varepsilon_i (\sigma_j - \sigma_i) \tag{1}$$

where $\varepsilon > 0$ is an individual specific status parameter and $(\sigma_j - \sigma_i) > 0$ is the difference in status between individuals i and j. Also r_i is identified as an individual reservation price.

In the box design overlapping market there are N sellers each having reservation value r_s and N buyers each having reservation value r_b, where $r_b > r_s$.

Suppose that buyers have uniformly higher status than sellers; buyers have status σ_b sellers have status and $\sigma_b > \sigma_s$. Buyer i will be willing to buy the indivisible good at the price p only when $-p + r_b + \varepsilon_j (\sigma_s - \sigma_b) \geq 0$[4], or equivalently, when

$$p \leq r_b + \varepsilon_j (\sigma_s - \sigma_b) = r_b' < r_b \tag{2}$$

Since buyers have higher status than sellers, the status term for buyers is negative, so the highest price at which i is willing to buy is this market is lower than the highest price at which i would be willing to buy in the absence of status. Following the same procedure for a low status seller one can obtain that

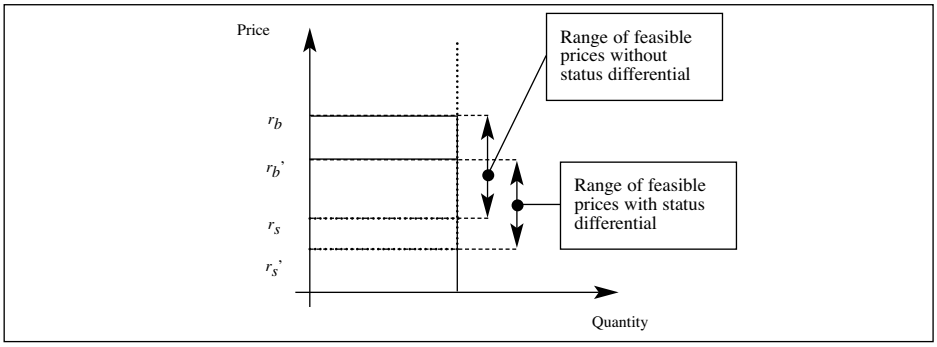
$$p \geq r_s + \varepsilon_j (\sigma_b - \sigma_s) = r_s' < r_s \tag{3}$$

Hence the whole range of equilibria shifts down, Figure 3.

This result lead them to the experimental hypothesis: in markets where sellers have higher status, the distribution of equilibrium prices will be higher than in markets where buyers have higher status. In Ball's experiments there is a statistically significant difference between the distribution prices in the way that this hypothesis predicts.

[4] It is implicit here that utility represents a quantity of money. Therefore in this set up status is measured in monetary units.

Figure 3. Ranges of feasible prices



5. Our Experiment: Status Still Matters

We have some disagreements with Ball's treatment. First of all it is difficult to think of contracts at prices between r_s and r_s'. This would mean that somebody is selling a unit having a monetary loss. Unfortunately the complete record of contracts is not included in Ball et alter (2001) then we cannot check if there is such a contract. It looks more reasonable that prices when buyers have status lie in the interval between r_b' and r_s. Another and most important objection is the using of a multiple equilibria box design. A unique equilibrium design is not used because it is supposed that competition is so strong that the walrasian outcome cannot be biased by a status effect. Nevertheless no relation between status and competition is explained or even supposed neither in the proposed model nor in any other way.

At this point we asked ourselves some questions: what could be the effect of introducing status in a box design with only one equilibrium? Or in other words, can competition erase the status effect? Will we find persistent not walrasian outcomes? Our guess was that maybe a slower convergence would appear. This section explain our experiments and findings. Following our second objection to Ball et alter we thought of a variant of the status model and also designed and run a series of experiments.

5.1. *Status Model Revisited*

Let us state a variant of the Ball's model using values and costs and analyse it for the case of a unique equilibrium. We did not include any explicit relationship between status and competition. This would be done only if it appears that status no longer matters.

Let us suppose that there are L low status buyers and H high status sellers.

Let $v - p + \varepsilon_l (\sigma_H - \sigma_L)$ the payoff[5] that a low status buyer receive when he buys an indivisible unit from a high status seller. Where v is the value of a unit, p is the contract price, $\varepsilon_l > 0$ is a subjective status parameter, σ_H is the high status parameter and σ_L is the low status parameter such that $\sigma_H > \sigma_L$. A low status individual is willing to buy an unit if his payoff is bigger or equal than zero, that is if $p \leq v + \varepsilon_l (\sigma_H - \sigma_L) = v'$.

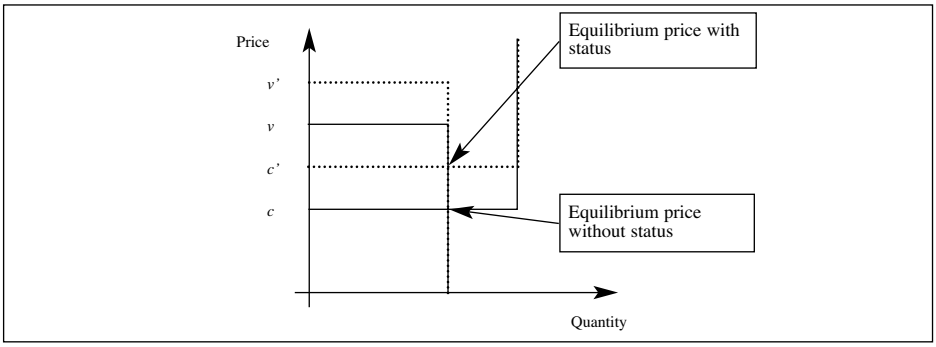
Now $p - c + \varepsilon_h (\sigma_L - \sigma_H)$ let the payoff that a high status seller receive when he sells an indivisible unit to a low status buyer. Where now c is the cost for the sellers and $\varepsilon_h > 0$. In this case the high status individual is willing to sell if his payoff is bigger or equal than zero, that is if $p \geq c + \varepsilon_h (\sigma_L - \sigma_H) = c'$. Since $\varepsilon_h (\sigma_L - \sigma_H) > 0$ then a high status buyer is willing to buy at a price $p > c$.

What happens is that both supply and demand curves move up (Figure 4) and there is a new competitive equilibrium at,

$$p = c - \varepsilon_h (\sigma_L - \sigma_H) = c' \tag{4}$$

Note that ε_h is a subjective parameter, it means how subject h values status differences. Therefore the equilibrium price is not exactly determined, we have a lot of noise in the new competitive outcome.

Figure 4. Equlibrium prices with and without status



[5] We prefer to speak here in terms of payoffs rather than in terms of utility functions.

We can normalize the status difference,

$$(\sigma_H - \sigma_L) = 1 \tag{5}$$

note that we have two degrees of freedom. That is, we can not make any difference between the real difference in status, $(\sigma_H - \sigma_L)$, and the valuation of the status for each particular individual, ε_h. We can estimate ε_h as a random variable for each individual using the series of individual data collected. We can also estimate the average high status effect ε_H. This is what we actually did because we have much more data in this case.

So, using an equivalent model to the Ball one we can think of a status effect maintaining the unique equilibrium box design. That is, if there where a strong competition effect that can erase the status power it is not explained in Ball's model.

6. Experimental Procedure

Two market experiments were conducted using the status treatment and other two without status[6]. Thirty two subjects were recruited at the Universitat Autonòma de Barcelona using advertisement asking for people interested in participate in a decision taking experiment and remarking the fact that they will be paid just for show up and also that more money can be earned. They were a mixture of people having economic and non-economic background. We did not allow participation in more than one session. There were eight subjects in each session. Subjects were paid 500 ptas. for showing up.

In the status treatment participants first of all answer the quiz. This quiz consists in ten obscure questions having a numerical answer (see Appendix). They are obscure in the sense that they are sometimes difficult to guess (like the «which is the percentage of Italian cars sold in Spain») or tricky[7]. Participants are required to answer

[6] Of course, this is a small amount of experiments we cannot get any valid statistical inference. We had to face budget and time constraints. But regularities found are very interesting, so more experiments (with proper financial support) will be run to complete this research.

[7] Among sixteen participants nobody can guess properly the year of proclamation of I Spanish Republic, 1873. «Best» answers confuse it with the II Republic, 1931.

the questions in the best way they can. In particular we tell them that some questions are very difficult so we expect from them a good guess. After they finish the test we took some time to score it in the simple way of adding the answers, of course they did not know what we were doing. We announce the names of subjects that have done the four «best» (higher sum) tests. Then we congratulate them at the end we ask for an applause for this elite group.

The next step was to tell them that we are going to run an auction and that the status group will take the role of sellers. In this moment we ask the status group to sit in the first row of the class forcing other people to move if it is needed. Then instructions (see Appendix), values, costs and number of units were handed out to sellers and buyers. At this moment we tell them that they have to maintain number of units costs and valuations as private information and that after this time it was forbidden to talk in the experiment if it was not to ask something. Usually we take some time to explain how the auction works and to run a test period. Then a ten period double oral auction starts.

From three to four people are needed to run the experiments. One auctioneer who was instructed to alternate between calling on a random bidder from the buyer side of the market and one from the seller side, only calling on the same side twice in a row if there are no bidders on the other side of the market[8]. There are also one recorder and one person to write bids, offers and contracts on the blackboard.

Any seller (high status) is endowed with four units to trade and cost of fifty pesetas for unit sold. Any buyer (low status) can buy up to three units with a valuation of one hundred pesetas. There are four people in each side of the market. Hence in every of the ten five minutes periods up to twelve units can be traded. This means that if the competitive outcome were reached buyers would obtain up to 150 ptas. per period and then 1500 ptas. in the ten periods plus the 500 pesetas show up fee. If the competitive outcome were not achieved but the market were cleared the 1500 ptas amount is shared between sellers and buyers. Status experiments last from two hours to two hours and a half. Non-status experiments last from one hour and a half and two hours.

We remove the quiz and the status awarding ceremony in the non-status experiments. We just randomly assign the roles of buyers and sellers.

[8] There is a different auction procedure: just let buyers and seller «call out» prices in any order. Ball run some sessions in this way and the results did not significantly differ from sessions using the explained procedure. Therefore we choose this because it is less messy to conduct an experiment in this way.

7. Results

We used the status procedure in the first two experiments. We run our first experiment on April 27 2001. We can summarize the result by saying that there was no convergence to the walrasian equilibrium outcome. This result was really encouraging. The second experiment was done on May 4. The no-convergence result appeared by second time. Then on May 11 we run a third experiment, this time without status, as a control just to test that our experiment design was correct. There must be convergence in the third experiment and indeed there was. We had time for one more experiment before our possible subjects (UAB students) start their exams period. So we run another non-status experiment and this time the result was not so clear. First of all we had to finish the experiment in the seventh period because time limitation problems[9]. Second, and worst, one of the sellers seemed not to be very interested in the experiment and did not enter the market enough times. In fact he sold one unit in most periods, two sometimes and even zero once. But still, contract prices show some degree of convergence at the end of the experiment. Moreover the usual result of a double auction market is convergence to the Walrasian equilibrium (see Davis and Holt, 1992. See also Section 3), we can admit some deviation due to errors. So we are not much worried about experiment number four. Figures 5 contain the contracts attained in the experiments, there is a one unit gap between periods that can be greater if some unit remained unsold. Figure 6 contains the average period contract for each experiment. Figure 8 represents the average period status contract against period non-status contract.

Looking at any of pictures 5 to 7 we can think that there is a permanent status effect. Status experiments neither converge to the walrasian outcome nor to any other precise outcome. There is an average status price around 74 ptas (74.29 is the exact number) with a significant standard deviation of 5.67. We think in three ways to explain this result.

The first is to follow our adapted Ball's model defined by equation (4) and the normalization (5). We plotted the distribution of ε_H in figure 8 and using a normality test we cannot reject that ε_H follows a normal distribution with mean 24.29 and standard deviation 5.66.

[9] One of our subjects had to leave the experiment at sharp expected ending time because academic obligations. We spent a lot of time explaining the auction procedure in this particular experiment. It was our fault, of course, the scheduled time proved to be very tight.

Figure 5. Contract evolution on time. Each point represents one unit sold. Price is the vertical axis. Unfinished «Experiment 4» is the problematic tratment

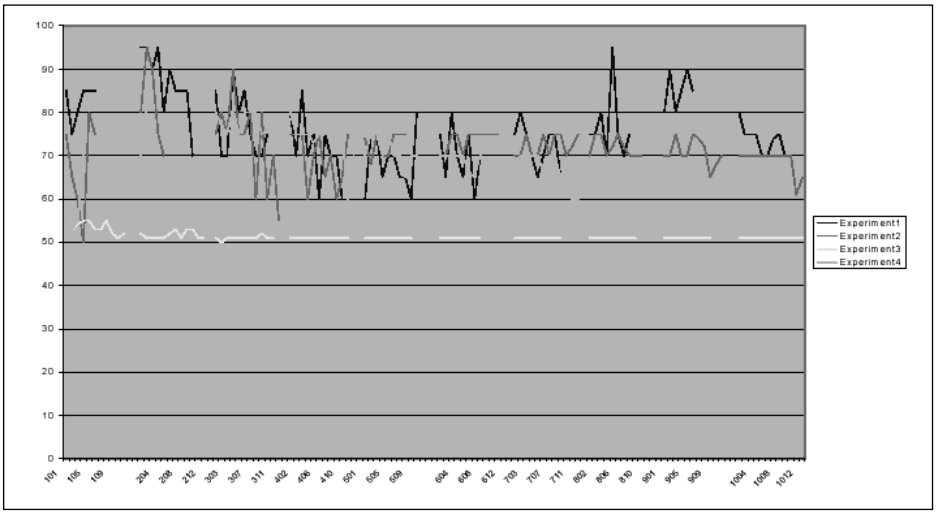


Figure 6. Average status and non-status price series

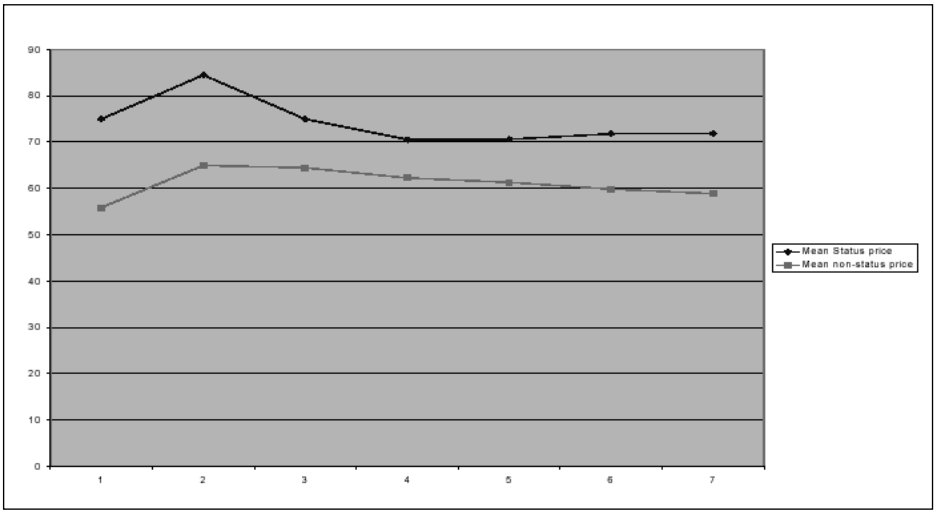
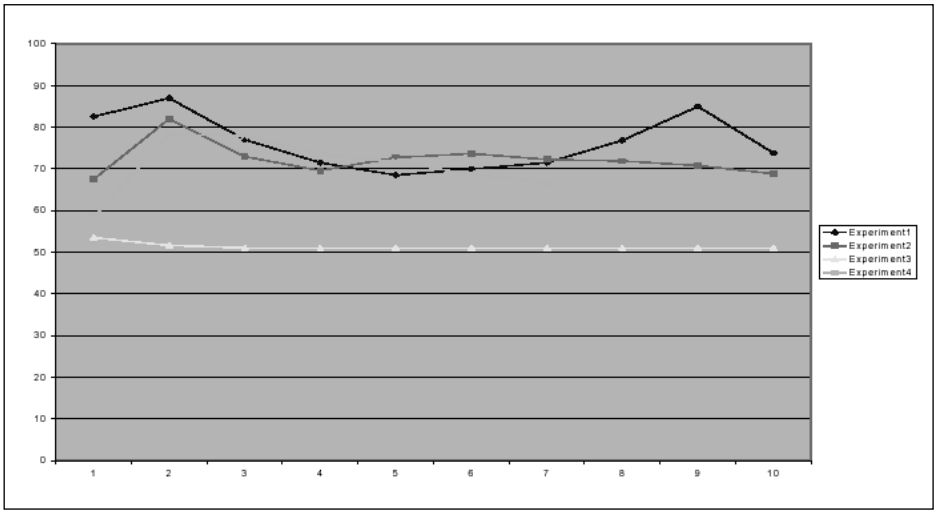


Figure 7. Average period prices



The second way is to consider a mixed strategy equilibrium. One can note that in this particular design Cournot equilibrium coincides with the monopolistic solution. So we can think that the obtained outcomes are the result of a mixed strategy between monopolistic and competitive equilibria. One can think is some way of implicit collusion in the status side. They would have a preference for the group result. But still, we do not like very much this approach.

The third possibility is say that the obtained results are just out of equilibrium. This is not a weird thing at all. In fact there is a lot of evidence of out of equilibrium results in ultimatum games[10] (see Camerer and Thaler, 1995).

We can find a sort of equivalence between first and third approach. Indeed, if we attach the proper thing in the payoffs or in the utility functions we can find always an equilibrium result. The point here is identify what are the determinants that really matter. It seems that status is important. This is the crucial result.

[10] This is a simple game. Player 1 propose a share of a cake to Player 2. Hence Player 2 just accepts, and the proposed share is implemented, or rejects and the cake is totally wasted. Subperfect Nash Equilibrium predicts that Player 1 will get the entire cake minus . However, there is only evidence of SPNE results in very primitive societies (see http://webuser.bus.umick.edu/heinrich/game-project.htm)

8. Future Research

There are a lot of possible experimental work regarding status. Our immediate task is naturally to run a larger series of experiments in order to allow statistical inference. Then we can think in further developments.

Maybe status has something to do with cooperation experiments. Consider the following benchmark experiment. Take a bunch of subjects and distribute them randomly in groups. Then ask them to distribute an individual endowment of inputs in private and public goods. Then run other experiments assigning status to certain people and compare the result for pure high status groups, mixed groups and low status groups. Perhaps it would be interesting to ask the to do some real effort in the experiment. Other possible experiment can use people of different origins to look at the degree of cooperation for an economic profitable task in groups with the same origin in comparison with mixed groups[11] (Fershtman and Gneezy).

It seems interesting also to move to coalition formation set ups. Give to some subjects the names (that can be clearly identified with two certain origins) and some information about the skills of everybody. Let them to form coalitions to perform a certain task. Let's see what happens and the maybe split some groups and enforce new ones (perhaps the most or the less theoretically efficient coalitions) and see the efficiency of new coalitions.

It looks specially interesting to run «marketing experiments». As we say in Section 2 a part of marketing can be understood as the ways to allocate status to products in order to become more attractive for a certain part of the consumers. This sort of research is actually done by business people in market prospects. They use questionnaires to ask people about their preference for a new or existing product. But asking people looks a very rational approach. Let's think for example in the wine equivalent of the Pepsi «blind test» experiment. Choose three really similar wines, maybe one Spanish, one French and the third Italian made with the same type of grapes. Ask people about their preferences about wine 1,2 and 3 without knowing the country of origin. Ask other people the same question but now let them to know the origins of

[11] This can be extremely politically incorrect. There is an experimental paper using Ashkenazy and Eastern Jews on this topic (Fershtman and Gneezy, forthcoming). However we can find a positive question: how much time do people of different origins need to improve their coordination? Is this possible for any human group?

each wine. Would we find any significant difference? Now run the same experiment in Spain, France and Italy. Is there any «irrational» preference for local products?

9. Conclusions

Status matters in human relations. This is nothing new, we can see it in every day's life. We have found that status can have an effect on price and the allocation of resources. Even a unique equilibrium result in a very competitive market can be biased. This is a new thing. The fact that in our experiments status is allocated in a superficial way strengthens our belief that status play an important role in real-world economic interactions.

This finding suggest that higher-status people have greater access to resources, and so that it is worthy to invest in the acquisition of status whatever this means. So status can play either against efficiency and equality. It is a politic task, therefore a public task, to decide how efficient and equal is the society we want. So social status must be taken in account in policy making.

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APPENDIX

A1. *Trivia quiz*

Numerical Test of General Ability (NTGA)

Name and Surnames:

1. What percentage of the Spanish budget is allocated to Health?
2. What was the inflation rate in Spain in 2000?
3. What percentage of garbage is recycled in Barcelona?
4. What is the percentage of cars sold in Spain imported from Italy?
5. What is the number of existing countries that belonged to the Old Yugoslavia?
6. How many letters of the Latin alphabet are used to write in Spanish?
7. How many letters of the Latin alphabet are used to write in Catalan?
8. In which year was the 1st Spanish Republic stablished?
9. In which year did the 'Harvester's War'[12] start?
10. How many stars were in the US flag that was being hosted in the battleships moored in Pearl Harbour when the attack of the Japanese Combined Fleet started?

[12] «Guerra dels Segadors».

A2. *Seller Instructions*

Congratulations! You belong to the STAR group because of your answers to the Numerical Test of General Ability*

Now you are a SELLER.

We are going to simulate a competitive market during 10 PERIODS. Each period lasts for 6 minutes. There will be alternating SELLING INTERVALS and BUYING INTERVALS in any period.

We are going to run an auction. When the auctioneer calls on sellers, meaning that we are in a SELLING INTERVAL you or other person from your group will may offer a selling price or he can decide to sell one unit at the current asked buying price. To indicate you want to perform one of these actions you have to raise your SELLER CARD. The auctioneer will decide which of the sellers (among the ones that have raised his seller card) can perform an action in this interval. If you cannot do what you wanted to do try it in the next interval. LOOK! You can only offer a price lower than the standing selling price. However, when a contract is accepted the process restarts and the in the NEXT selling interval you can start offering whatever price.

You have a COST** you can understand as a production cost. When you sell one unit you will have to take note of your PROFITS in the corresponding record sheet box. Your PROFITS are equal to PRICE-COST.

Only selling units has a cost for you. There is no cost related to unsold units, but there is no profit either. You have a particular limit to the amount of units you can sell.

In each period you can only sell units one by one. You will need more than one interval to sell all your units.

Let's go to start with a PERIOD 0, or test period in order to check you have understood how this market works. You should record period 0 profits but they will not be included in the final payment. We will pay the profits obtained in periods one to ten.

* This phrase is omitted in the non-status treatment.

** Subjects know costs trough the record sheets.

A3. *Buyer Instructions*

Now you are a BUYER.

We are going to simulate a competitive market during 10 PERIODS. Each period lasts for 6 minutes. There will be alternating SELLING INTERVALS and BUYING INTERVALS in any period.

We are going to run an auction. When the auctioneer calls on buyers, meaning that we are in a BUYING INTERVAL you or other person from your group will may ask a buying price or he can decide to sell one unit at the current asked buying price. To indicate you want to perform one of these actions you have to raise your BUYER CARD. The auctioneer will decide which of the buyers (among the ones that have raised his seller card) can perform an action in this interval. If you cannot do what you wanted to do try it in the next interval. LOOK! You can only ask a price higher than the standing buying price. However, when a contract is accepted the process restarts and the in the NEXT buying interval you can start offering whatever price.

Each unit you buy has a VALUE for you. When you buy one unit you will have to take note of your PROFITS in the corresponding record sheet box. Your PROFITS are equal to VALUE-PRICE.

You have a particular limit to the amount of units you can buy.

In each period you can only buy units one by one. You will need more than one interval to buy all your units.

Let's go to start with a PERIOD 0, or test period in order to check you have understood how this market works. You should record period 0 profits but they will not be included in the final payment. We will pay the profits obtained in periods one to ten.